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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,048	04/04/2006	Teh-Hsun B. Chen	6395-66078-03	5962
46135	7590	07/06/2007	EXAMINER	
KLARQUIST SPARKMAN, LLP			RAEVIS, ROBERT R	
121 S.W. SALMON STREET			ART UNIT	PAPER NUMBER
SUITE 1600			2856	
PORTLAND, OR 97204				
MAIL DATE		DELIVERY MODE		
07/06/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/575,048	CHEN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Robert R. Raevs	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 10 May 2007.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-39 is/are pending in the application.  
 4a) Of the above claim(s) 1-21 and 34-37 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 22-33,38 and 39 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

Election of Group II is acknowledged. Regarding traversal, Claim 1 employs features (particular retaining member) not in Claim 12, and Claim 12 includes limitations (eg. "reverse") not found in Claim 1. Claims 12 and 34 provide an analogous situation. In addition, please note that 6 pages of IDS suggest that there are many references out there with different features therein, as presumably the many cited references are not duplicative.

Claims 22-33,38,39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1,12; what does "air" mean? The specification states (p. 5, lines 23-24) that air may "include any gas", which suggests something other (ex.. exhaust gas in an exhaust pipe) than air. Part of the difficulty here is that "the term " includes" means "comprises" " (p. 5, line 18), expressly suggestive that the air may be "any gas". Is this Applicant's intent? Also, what does "conduit" mean? Para 44 (of 20070068223) suggest that lines 48 and 50 are "passageway or conduit". Is there a difference between the two? Isn't a conduit an elongated tube that has a passageway, and thus is something different from the illustrated passageways 48,50 in the figures? Does the claim mean that it's limited to a retaining member that includes a few tubular members (i.e. conduits) therein? Does the application use the terms passageway and conduit

interchangeably, such that a conduit is any passageway (including a passageway in a large block)?

As to claim 15, which of the two air outlet conduits does "the air-outlet conduit" refer back to? One, the other, or both, or either?

As to claim 22, what does "air" mean? The specification states (p. 5, lines 23-24) that air may "include any gas", which suggests something other (ex.. exhaust gas in an exhaust pipe) than air. Part of the difficulty here is that "the term " includes" means "comprises" " (p. 5, line 18), expressly suggestive that the air may be "any gas". Is this Applicant's intent?

As to claim 30, "the analysis" can be the same as the "analysis" (of claim 22), as the "analysis" of claim 22 is of "the particles" (last line of claim 22) that were separated in the first collection vessel. In effect, the particles that are "still in the second collection vessel" are not "the particles separated from the air" (of last line of claim 22), as all of the particles exiting the first collection vessel (and thus those that "are separated from the air" of claim 1) are not "still in the second collection vessel" (last line of claim 30).

Possibly, "27" (line 1) should read – 29 --.

As to claim 38, "microcentrifuge tube" lacks antecedent basis.

As to claim 34, what does "*airborne*" (italics added) mean? Is air really air?

As to claim 36, what does "conduit" mean? Does it mean a passageway, or are there really two tube/lines within the fitting?

As to claim 39, "the cyclone device" lacks antecedent basis.

Claims 22,23,27,29,30,31,33,38,39 are rejected under 35 U.S.C. 103(a) as being unpatentable over North in view of Une.

North teaches (Fig. 18A) a method to collect particles in a vacuum cleaner, including: flowing untreated air into a collection vessel 212; and establishing a "reverse" (Para 139) cyclonic air flow pattern in the vessel such that particles are separated.

North does not analyze the particles that are separated.

As to claims 22,23,31,33,38,39, it would have been obvious to measure the amount of collected particles as Une teaches use of an infrared in a cyclone type vacuum cleaner to notify the user that a predetermined amount of material has filled the collector.

As to claim 27, North employs a first vessel 212, and even employs a second vessel 246 which receives cyclonic air flow (note element 254,248) in that second vessel.

As to claims 29,30, the particles collect in the second vessel 246, which suggests locating the IR sensor there.

Claims 27,28,25,26 are rejected under 35 U.S.C. 103(a) as being unpatentable over North in view of Une as applied to claim 22, and further in view of Conad et al.

As to claims 27,28,25,26, it would have been obvious to employ two cyclone separators in series as Conrad teaches (col. 1, lines 14-25) use of series connected units to increase the level/efficiency of separation. As to claims 25, 26, in this instance, Une's amount sensor will sense larger particles in the upstream cyclone.

Claims 22,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vallayer et al, in view of either North or Conrad et al '189.

Vallayer et al teach (Figure 2) a method, including: flowing untreated ambient air 26; establishing a cyclonic air flow pattern to collect microorganisms; and analysis (Para 39).

Vallayer does not state that "reverse" cyclone flow is achieved.

As to claim 22, either (1) North teaches (Figure 18A, and Para 139) that a cyclone shaped like Vallayer's provides for a reverse flow, or (2) it would have been obvious to employ a cylindrical cyclone (like Conrad's, which provides for reverse flow) as Conrad teaches (Para 36) use of cylindrical cyclones to achieve effective separation.

As to claim 32, Vallayer's microorganisms are suggestive of bioaerosols.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sjoberg et al teach a method for analyzing airborne particles by measuring the amount of particles collected over time by measuring motor current (col. 3, lines 30-35). However, the particles in the collection vessel 23 do not undergo "reverse" cyclonic air flow. There may be reverse cyclonic air flow in vessel 10, but that vessel does not collect.

Conrad teaches (Figure 17A) cyclonic separation.

Conrad et al '189 teach "reversed" (Para 36) air flow for separation, and (Para 32) particle classification.

Saunders et al teach (ABSTRACT) a reverse flow cyclone separator.

Call et al '665 make reference to employing polymerase chain reaction to identify biological compounds, but does not describe the particular reverse cyclone sampler.

Wick et al make reference to employing PCR to identify biological compounds, but does not describe the particular reverse cyclone sampler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Raevi whose telephone number is 571-272-2204. The examiner can normally be reached on Monday to Friday from 5:30am to 3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Robert*  
*RAEVIS*